

ABSTRACT

A method for protecting a metal surface from galling and corrosion includes a step of providing a protective dry film on the metal surface. The film includes a solid lubricant and a conducting polymer, the conducting polymer having lubricant properties and being capable of binding the solid lubricant to the metal surface. Threaded metal joint surfaces coated with the film are capable of resisting galling under high pressure and high torque conditions, even after several fastening and unfastening operations or over a long period of time. Protection from corrosion is also provided by the film. The method and film are economical in that only a single layer of protective compound need be applied in order to provide metal surfaces with both lubrication and protection against corrosion, and problems such as removal or leakage, which are associated with protective compounds that use oils, are avoided. Additionally, the dry film is advantageous because it does not contain heavy metals that are harmful to the environment.